Leadership and management dessertation

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Abstract

Purpose

The aim of this dissertation is to bring an improvement in the management of peripheral intravenous device in the male general ward.

Method

A systemic research was done to collect suitable information and to propose a change. The male general ward was chosen to make the change process. The change was implemented by Lippitt's theory model and the reflection was structured using John's model of reflection

Result

The articles demonstrate that a new practice protocol apply in the management of peripheral intravenous device reduce the risk of complication.

Conclusion

Scientific evidence suggests that there is a need for a change in the management of peripheral intravenous device in the local context.

Keywords:

Peripheral intravenous device, systematic review, thrombophlebitis, management, leadership.

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INTRODUCTION

1.1 Introduction

This work focuses on the improvement of the management of peripheral intravenous device (PIVD) of admitted patients in male general ward in Queen Elizabeth Hospital in Rodrigues. According to M. A. Hagbaghery (2004), nurses are recognised to be the major group in the health service as they have an important role in the promotion of health care. Peripheral intravenous device (PIVD) is a flexible tube inserted mostly by a nurse in the peripheral vein for administration of drugs, blood products, nutrition or fluids. The lines can also be used to draw blood. The cannula can then be fixed by tapping it to the patient skin. A PIVD is frequently use in the emergency room, surgical patient and for administration of radiocontrast for radiological imaging techniques. (Borzaks et al 1998). PIVD is the most common vascular access use in medicine (Critical Care Nurse 2017). Reilly et al (2007), highlighted that 33.3 per cent of hospitalised patient have a PIVD in situ at any given time. Studies found that over eighty-five percent of hospitalised patient in USA received intravenous treatment through a peripheral intravenous device. Furthermore, about three hundred and thirty million PIVDs are used in the United States every year (Hadaway, L. C. 2012). In the local circumstances it is a routine that every patient who is to be admitted to have a peripheral intra venous device (PIVD) at the Accident and Emergency department.

Although it is rare, serious adverse outcomes occurs with Peripheral intravenous device (Monreal M 1999). The treatment is often interrupted by phlebitis (Monreal M 1999). The problem associated to peripheral intravenous device has gained increasing attention in recent years. The failure rate of PIVD as a result of occlusion is between 20% and 69% (Royer, 2003, Bolton, 2010, Rickard et al, 2012). Recurrent PIVD insertions because of failed devices need numerous puncture in the skin layer. As a result, this intensify patient discomfort and staff time as well as predisposing patients to infection from skin commensal (Mermel et al, 2009;). Furthermore, the complication of PIVD causes a great deal of increasing health care cost, duration of hospitalization, mobility and death (Pronovost P et al - 2006). Additionally, PIVD is considered among one of the most preventable nosocomial infection (Pronovost P et al - 2006). Moreover, patient on PIVD are at high risk of developing complication such as infection at site of insertion, swelling, phlebitis and septicaemia (Pronovost P et al - 2006)

After discovering a lot of patients in the male general ward complaining of pain, discomfort, thrombophlebitis and infection after insertion of PIVD, the author seize the opportunity to undertake a literature review on the management of PIVD. The topic covered management, complications and prevention of infection related to PIVD. This was developed with the intention of translating research knowledge and the best current practice into the actual state.

A systematic search has been done in such a way that the most appropriate and relevant evidences for improvement of PIVD management is conducted for the reliability of the implementation. This work contains literature review which includes knowledge, essential findings, methodology and theoretical contribution on management of PIVD.

However, to strengthen the change, the democratic leadership is used to apply, lead and guide other nurses in the male general ward to accomplish the change management of the PIVD. The Lippitt's theory (1958) change model is applied to examine the feasibility of the work. The reflection model of John is used to reveal upon the author's learning experience and present critical analysis of the articles and eventually a conclusion is made to analyse the different theories and skills obtained in the new practice and its influence in the forthcoming practice.

The purpose of the work is to bring an improvement in the effectiveness of the quality, safety and efficacy in the management of peripheral intravenous device in the local health care.

1.2 Problem statement

The author noticed that many of the patients in the male general ward was complaining of pain, redness and swelling at the site of peripheral intravenous insertion**.** However, he went through the literature review and identified the factors contributing to the negative outcome.

1.3. Search strategy

The search strategy is done to show how these terms combine so as to retrieve the best results. Carnwell and Daly (2001) highlighted that a search strategy shows the application of various search techniques to gather credible findings and avoid irrelevant literatures. For this work, the literature was taken through the Leeds Beckett university database, *discover*. This is selected since it has a multiple of database including health care journals. The search has been carried out by Boolean form, using *and*, *or* and *not* in order to refined the theme. The research was reduced to thirty-five out of 43,279. Among them only seventeen papers containing the peer review articles were taken to ensure that the work is fair and reasonable as stated by Parahoo (2006). The research was limited to the date from 2005 up to now to reduce the amount of out dated information. Duplicate data was excluded. For further reduction, the English language is selected since it is easier to understand and apply.

However, after reviewing the seventeen restricted literature, additional search was conducted from academic paper sourced from google scholar, National Health Services (NHS), CINAHC, pub Med and Medline via EBSCOhost as a mean to identified gap in the nursing knowledge related to the management of PIVD. Moreover, a lot of Information's in the review have been retrieved from European and American journals mostly due to the abundant of research in peripheral intravenous device.

In addition to this, a wider internet search was conducted so as to gain access to policies and protocol from the Nursing and Midwifery 2015 (NMC 2015), DH as well as NICE (2007) and RCN publishing.

This paper was criticised and their theme was analysed in depth. The common theme emerging was management of PIVD, its risk factors, prevention of infection and complication in admitted patients. However, some of the literature were removed from the abstract as it doesn't contain strong evidence supporting the management of PIVD.

LITERATURE REVIEW

2.1 Introduction

Within the reviewed literature, the theme will be identified as the main topic and help to structure the work as highlighted by Ross Carnwell and William Daly (2001). The themes that will be discuss are; Prolonging the life of Patient's PIVD, importance of documentation, preventing of infection related to PIVD and Nursing and midwifery practice in relation to the care of PIVD. These themes will be analysed and the findings and method used will be criticised and in paralleled to the local circumstances.

2.2 Prolonging the Life of Patient's PIVD

Insertion of PIVD is a daily nursing responsibilities (Kelly, 2009). As highlighted by DaSilva, Priebe, & Dias (2010), even though peripheral intravenous device placement is a nursing procedure, Peripheral vein puncture is a complex and skilful process that can cause hazard for patient and nurses if not perform properly. Heparin has been widely used for the maintenance of intravascular catheters in patients requiring intravenous medications. As a classical anticoagulant-medicine, heparin is considered to prevent the formation of thrombus within the indwelling catheter while being used as a flushing or locking solution (Unal S et al 2012). Conversely, other studies have reported no additional benefits from heparin compared to normal saline in promoting catheter patency (Shoaf J 1992, Nilsen KM 2003). Moreover, a research done in china from August 2011 to October 2011 demonstrated that heparin shows no significant benefit on the duration of patency and infusion failure. The Infusion Nursing Standards of Practice and the Joint Commission and Centres for Disease Control plus Prevention strongly not approved using of single dose heparin to minimise the threat of PIVD complication.

In addition to this, throughout the literature review, Claire M Rickard et al conducted 362 patients (603 IVDs) in a regional teaching hospital in Australia for having PIVDs replaced on a routine change every three days. In the study they found that 96 hours routine resitting of PIVD was not an effective intervention. It appears harmless and practical to keep the PIVD in situ if it functions well. Webster J et al (2007), Maki DG et al (2008) conducted their study in a medical and surgical wards concluded that, PIVD is not benefit if routinely changed every 3 days. On the other hand, some studies have specified that bacterial colonization and thrombophlebitis rises when device are left in place for more than seventy-two hours (cited in the [40] Australian Council for Safety and Quality in Health Care (2003), (Gillies D et al (2004)). Despite some studies concluded that routine PIVD reinserting cause pain to patients, increase staff time during procedure and equipment costs, it is found, however that these was marred by unrepresentative sample size. Larger studies supported that there is an augmented rates of complication after seventy two hours of insertion. Additionally, Webster J et al (2010) highlighted that there was not any approval made concerning replacement of PIVD merely when clinically specified. Ewa Idvall (2006) stated that there was no adequate scientific proof which suggested that elective changing of PIVD diminished the occurrence and harshness of PIVD complication. The RAH recommendation to remove a peripheral intravenous device within this actual time setting must hence continue until additional studies with greater influence to be shown. Moreover, the United Kingdom and the Australian guidelines mention that PIVDs need to be changed every 48 to 72 hours in order to diminish the danger of complications.

Many studies initiate in the literature found that thrombophlebitis is one of the uppermost local complication of PIVD (Juvé Udina et al 2003). Phlebitis can be due to traumatic, chemical and septic (Clayton, Stock 2006 and Rivas D et al 2004).The sign and symptoms of phlebitis or thrombophlebitis are pain, tenderness, oedema, erythema, and an intensification of local temperature (Yalkowsky SH, Tagalakis V 2002). The predisposing factors of phlebitis are, the lumen sizes of the device and it's length as well as the skill of the nurse who insert the PIVD; the occurrence of changes of PIVD dressings plus host factors, for example sex, age and some diseases (Maki DG 1991, Tagalakis V 2002).To inhibit reflux of blood into the cannula lumen, patient should be taught to avoid excessive, strenuous activities while a PIVD is in place (. Lynn H 2017). Anabela Salgueiro-Oliveira, Pedro Veiga and Pedro P (2010) made a research on the occurrence of phlebitis in patients with PIVD and the hazardous factors which lead to its development. The observational research was performed in a Medical ward in Portugal. A number of 1,244 device were experiential, and 317 were removed and injected. The result shows that patients receiving intravenous potassium chloride and antibiotic and those who had a device in the upper limb were at higher menace to develop vein complication. Pedro Veiga et al (2010) also noted that there was no important differences between the number of real-time devices and thrombophlebitis. Though, Maki et al (1991) suggested that the danger of phlebitis rises to more than one time when devices have previously been in situ. Similarly, Regueiro P et al (2005) also noticed that phlebitis rate rises, depend on the amount of devices in situ (Ferreira et al 2007).Additionally, Uslusoy, Mete et al (2008) highlighted that the prevalence of phlebitis rises when devices are frequently inserted in the same arm. As regarded to the infusion rate, there were no changes detected. Many investigators of phlebitis said that it's danger were more when PIVD are intermittently rather than constantly, stated by Ferreira et al (2007), Regueiro Pose et al (2005), Carballo et al (2004) and Owens et al (1998).

2.3 Importance of Documentation in PIVD.

Another important finding of this literature review was documentation of the insertion of PIVD. Owen k (2005), pointed out that an accurate documentation is important to uphold permanence and update health workers in the continuing care and treatment of patient. It also offers medico legal proof (Owen, 2005). Additionally, correct documentation delivers a precise reflection of nursing assessments, care provided and evidence to maintain the health team to provide a better health services (cited in clinical guideline Melbourne hospitals).Base on an audit done from July to August 2011 in Royal Adelaide Hospital in Australia, they found that the ratio of PIVD complication has an inverse link with documentation. Donald M et al (2009) pointed out that even though documental procedure is a simple process for checking the PIVD insertion, this have revealed progresses. Moreover, Kelly Rosenthal (2005) stated that careful documentation of PIVD not only help to meet the standard of care but also provide safety control and precaution to patient. Documentation plays a pivotal part in the audit procedure, enables the generation of quantifiable actual information (HPS, 2012; DH, 2011). Documentation is found to develop health staff acquiescence which as a result help to develop the excellence of care for patients on PIVD (Boyd et al, 2011; Easterlow et al, 2010).

Moreover, the nursing and midwifery code of conduct underlined that nurses must keep clear and accurate records related to his/her practice. Nurses must document all records of PIVD immediately after the insertion. Nurses must identify any problem or risk that arise and step to be taken in relation to PIVD, in such a way co-worker who use the records have all the evidence they required (NMC 2015). Moreover, nurses need to attribute any records he/she makes so as to make sure it is evidently inscribed the date, timed and exclude needless jargon and abbreviation (NMC 2015).

2.4 Preventing of infection of patient’s peripheral intravenous device

When analysing the outline of the literature reviews, infection at the site of the PIVD insertion stood out as recurrent among all articles. PIVD infection touches about ten percent of patient in Scotland’s hospital ((Teare et al 2001, DH 2003, 2005). Six thousand patient are affected with PIVD in UK per year (Waghorn K l994). Clynn et al (1997) reported that invasive procedure such as peripheral intravenous puncture rises the danger of complication 7 fold. Therefore nurses have an essential role to play in the tackling and implementing solution to the major health concern (DH 2003, 2005, the RCN 2005 and Scottish Executive 2002). The usual means of infection for short-term device is the immigration of skin microbes at the insertion location into the cutaneous device region (O’Grady et al 2011). Storre et al (2005) highlighted that behavioural change is pivotal important in the long-term improvement and compliance. In a multi-modal study of twenty thousand participants, Pittet (2000) noticed that hand sanitation compliance better while using hand rubs. Furthermore Seal et al (2005) reinforced the usage of alcohol 61% zinc pyrithione. Bjerke (2004) said that alcohol and iodine and iodophors were the efficient disinfectants. One example is chlorhexidine gluconate. Moreover, Lawrence C, et al (1996) pointed out that sanitizers must be allowed to dry as per the manufacturer's reference before insertion the device.

In addition to the prevention of infection, Tagalakis et al (2001) reported that the place of PIVD attachment is an infection hazard. He also added that the favoured locations are the distal parts of the upper arm (cited in the RCN 2005), that is the cephalic, the metacarpal and the basilica veins (Dougherty and Lamb 1999). Wilson (2001) added that when PIVD is place in the posterior part of the hand it reduces the risk of infection. Lower limbs' vein must be avoided since it is more predisposed to develop risk infection and embolism (RCN, 2010). A transparent dressing must be used to reduce the risk of device sepsis (Campbell et al 1999 and Hindley 2004). Damani (2003) recommended the use of a sterile gauze dressing to protect the cannula, especially when there is a sign of bleeding. The environment where peripheral intravenous insertion take place should be notified and clean so as to prevent the risk of infection (Ingram and Lavery 2005). The dressings of the device must not be bandaging as this retain moisture and difficult to distinguish the sign of phlebitis (Dougherty and Lister, 2008). Also it is recommended to wear gloves when inserting the PIVD to protect the nurse from blood bones infection (Dougherty and Lister, 2008).

The majority of the study recognised that to prevent the complications of PIVD the health professionals must put attention on the use of these devices, for example insert merely when medically needed and ensure to remove according to mentioned guidelines. The equipments used for PIVD procedure need to be done in such a way to ensure that it is performed in line with the up-to-date references (Medical Devices Agency 2000). Dunn (2002) added that research has not proven that reused of PIVD equipment is safe. Irene Lavery et al (2006) suggested that the packaging have to be safe and in date. Out dated equipments can be a source of infection and consequently (Lavery et al 2006). When opening the package, nurses need to use a sterile technique to preserved infection (Lavery et al 2006).

2.5 Nursing and midwifery practice in relation to the care of peripheral intra venous device

The Nursing and Midwifery (2004) underlined that professional nurses are answerable to his or her actions. However, to improve the management of PIVD, nurses should safeguard the security and capable to practise. Related to universal safety measures, the competent nurse have a need to reflect each patient as vulnerable through assessment, planning and expert in PIVD insertion, continuing consistent monitoring, keeping and maintaining available records to diminish the menace of complication.

In addition to this, the nursing code of practice stipulate that all registered nurse to be conscious of, and diminish as far as possible, any potential harm associated with his/her practice. In the improvement of management of PIVD, nurses should try to decrease the prevalence of sharps injuries and spread of blood borne diseases to staff. Nurses should reduce the hazards of infection with the usage of Gloves and aprons (PIVD insertion RCN 2005b).

For the safety of needle May (2000) and Chalmers and Sraub (2006) recommended that needles:

- Do not re sheathing needles.
- Dispose the sharps instantly into an appropriate sharps container.
- Carrying used sharps should be avoided.
- As far as possible use the needle-free systems.
- Do not overfill the container that contain sharps.
- Always let the sharps drop into the container; avoid hand the sharps.

Ward et al and Yalkowsky et al (1999) inspected amiodarone-induced thrombophlebitis with thermal measurement to distinguish the effect of infusion rate, they concluded that the quick diluted formula is a vital variable in phlebitis.

2.6 Conclusion

After making an in depth review of the literatures, it clearly shows that a proper hand hygiene prior to PIVD in situ and care, combined with appropriate sterile technique is up most important in the management of PIVD. Documentation is vital especially for auditing. Although improvement of the management of PIVD can be challenging in the local circumstances due to the strong resistance by treating doctor, the literature review reviled that a proper management of change proposal alongside with a good leadership, can be implemented in the local service.

3.0 The need to change

The research was prepared to collect further evidence based information in the improvement of the management of PIVD and bring change to the present practise. The aim is to make awareness, knowledge according to the recent protocol and guideline and how to overcome barriers for an effective implementation of this project. As a result, there will be an improvement in the quality of care and patient satisfaction thereby shaping a world of dignity and respect for nurses.

4.0 SWOT Analysis

It is a suitable method to understand the Strengths and Weaknesses, and identify both the Opportunities and the Threats as stated by Pearce, (2007). This technique is use in this situations to review the work of our team in the improvement of PIVD, during the change management processes.

4.1 Strength

Strengths in this context means, what I identify that will do well and have success in the upgrading of the management of peripheral intra venous device. In spite of the problem of nursing staff shortage, all our nurses are qualified and have developed a good skill in the insertion of PIVD. They all possess a certificate in general nursing and most of them have more than seven years of experience in service. Since Rodrigues is a small island whereby everybody knows everybody, there will be a motivation towards a change in the benefits of our staff, patients and family. Concerning culture, all the Rodriguan people, have the same culture and there is a strong informal communication among us that will be a strength for the implementation of this project. In addition to that, since we are qualified nurse, insertion of PIVD form part of our duties. There is availability of the hospital infrastructure, such as ward, proper bed, PIVD equipments among others. Moreover, no additional cost is needed as we have availability of equipments.

4.2 Weaknesses

In general, whenever there is a change there will be always a scared environment (Lopis 2002). The fundamental one is time. Consequently, it will take more time to practice an insertion of peripheral intravenous device as per the evidence base practice guideline. However, some will believe that the improvement of PIVD insertion will lead to a disadvantage for other procedures in the ward within this extra work load. Time is a great weakness to achieve this goal. The second weakness is the understaffed departments and high workload on the ward staffs. On normal working day, only one charge nurse and two nursing officers are working in a ward of twenty-eight patients. Sometimes when there are emergencies in the other department one of the nursing officer have to move and help. The limited staff therefore is a weakness for this project. Furthermore, doctor factors are another weakness. The doctors in our hospital practice a certain way and not that they don’t care, but they feel their way is evidence based even though it may be outdated. Another barrier was the limited access to latest user-friendly technology. A great number of our nursing staff are not computer literate. In addition to this, our culture is a barrier in this proposal change. Rodriguan people are hesitant to change.

Other weaknesses identify are that there is a lack of resources support such as computers, poor availability of in-service educational programs and support for the development of the peripheral intravenous device. Some staffs are simply reluctant to change. There is a poor compliance of code of ethics and lack of practices that depend on evidence-based practice among nursing officers. Not everyone that will welcome responsibilities delegate to them. Furthermore, there is an absence of qualified persons capable of leading quality improvement programs, we don't have any staff that have studied up to degree level in the ward. Another great barrier is our culture as Rodriguan people are afraid of the consequence of change.

4.3 Opportunities

It is an opportunity for the benefits of all staffs, to take part in the training of PIVD in order to deliver a better service to patients. The eventual reduction of infection and phlebitis will automatically decrease the reinsertion of devices, discomfort and the stay of patients in the ward. Moreover, it was an opportunity to develop the standard of care in the general male ward, the standardized protocol can then be implemented in other wards. The standard of care will provide quality service and better patients care. Moreover, when the team will focus on the same objectives (improvement of PIVD), they will work for a common goal. As a result, this will improve the team spirit and there will be an opportunity for the improvements in other procedures as well.

4.4 Threats

For this proposal, there is a need for investment in renovation and innovation. Therefore, budgetary restrain represents as a potential threat. For instance, the recommended PIVD in this project is more expensive and very rare, this could be very difficult to realise in the short period of time. Lack of technology advancement including internet resources (i.e. online journals, search engines) and updated devices which lead to lack of evidence expertise system. Untrusty approach to implement the change can be a threat. There will be some staff who will make resistance to change. Applying the project only in the general male ward can be a cause of conflict if the patient finds out the difference if he is admitted in another ward.

5.0 Change proposal

The fundamental reason for this change is to make patient in the general male ward receiving their fluid therapy, blood products, and parenteral nutrients via the peripheral intravenous device in a safe and effective way as per the current standard of practice. Consequently, there will be less device failure and device replacement. Besides, there will be a reduction in therapy interruption, PIVD associated pain, staff time and hospital costs. There will be a more harmony and kindly environment between staff and patient leading to an improvement in patient satisfaction and hospital reputation.

In the actual state, the patient's treatment is more often interrupted by phlebitis, device blockage leading to patient's anxiety and stress. Fluid infiltration is another common problem that patients suffer which cause the inflammatory response of the vein. Extravasation happens when there is unintentional intrusion of medication into the surrounding PIVD location. Patients on PIVD having recurrent infection. Some patients complain of irritation when administering drugs intravenously and sometimes linkage of medication at the site of the device. In addition to this, very often the PIVD remain in situ for many hours after treatment.

The literature review suggested that to prevent the complications of PIVD, the health professionals must emphasis on minimizing the usage of these devices. For instance insert the PIVD once medically required and confirming to remove according to suggested evidence. PIVD should be replaced routinely if still in use every 72 hours **(**Webster J et al (2010) and Van Donk P et al 2009). Additionally, Louise McCallum et al (2012) highlighted that PIVD should be removed immediately when it became clinically unrequired. According to the nursing clinical guideline, nurses must use sterile method during the preparation and administration of drugs in the peripheral intra venous device. Vigilant observation plus close monitoring are vital to detect complications (Louise McCallum et al 2012). In our local service there is a weakness concerning this aspect. Therefore, change and development is recommended to be based on education and refresher course related to observation and monitoring of PIVD should be done on a continuous basis.

The preferable site for PIVD insertion is the distal parts of the upper arm, stated by RCN (2005). The majority of the study pointed out that the site of the PIVD in situ need to be protected in order to diminish the risk of device sepsis with a sterile gauze as stated by Eggimann et al (2000) and Damani (2003). Moreover, the RCN (2010), also the HPS (2012) mentioned that PIVD sites should be checked at least once daily but in the Rodriguan context, we fail to do in the current practice. It evidently shows a need for change in the education, competence and maintenance of PIVD. The use of visual aid technique will be efficient during training.

The literature reviews clearly set out the need that all PIVD equipments and procedure are observed and care to make sure that management of PIVD is done in aggregation with the current approvals as stated by the Medical Devices Agency (2000). The purpose of the change is to provide a sterile field prior and during to the procedure of insertion of PIVD. Constant refresher course and auditing is recommended.

In the literature, the research carried out shows that hand hygiene is pivotal in the inhibition of microorganisms, (Mitchell MD 2009, Kannan A 2008). Storre et al (2005) highlighted that hand hygiene is extremely important in the long-term improvement of the management of PIVD. The use of hand rubs can be used to clean the hand when there are no hand wash facilities (Seal et al 2005). Therefore, the authority should be informed about the importance of hand rubs. The WHO (2009) clearly specifies that hands should be disinfected prior to an aseptic procedures. Obviously, the need for a change in the way hand hygiene is performed as our standard in handwashing is poor.

Built on the relevant reviewed studies, the United State [2] Infusion Nurses Society has modernised its 'Standards of Practice' in 2011. It mentioned that the normal saline is use to flush and lock PIVD device (cited in Journal of Infusion Nursing 2011).The majority of the study preferred normal saline solution than heparin to flush and lock PIVD (Schallom ME 2012). Therefore, till now, heparin solution should not be used for flushing and locking PIVD especially in the local context as there is a scarcity of staff, lack of time and increase of workload. This suggested that the change should be based on continuous learning and evidence base practice.

Most of the author in the literature suggested that patient education and cooperation are important cited by Davey et al (2002) and Storre et al (2004). In a study (2008) Morris W et al discovered that patients who have provide education on symptoms of phlebitis are less at risk of developing complication. Additionally, Cossette et al (2005) highlighted that communication between staff and patients is an important element to provide quality care services and patient satisfaction. To implement this proposed change the cooperation, communication and relationship between staff and patients need to be altered.

Furthermore, a nursing audit is very important in the improvement of the management of PIVD. Unfortunately, in the local current practice there is no auditing. Therefore, there is a need to implement an audit for developing nursing care and ensuring patient safety.

Moreover, almost all of the studies put emphasis on the importance of a guideline in the prevention of the risk of complication of PIVD. Since in Rodrigues, we do not have a guideline and documentation are not at a good standard, the change will focus on following the WHO and UK guidelines.

6.0 Leadership and management

Before going for a change, managers have to reflect the strengths and weaknesses in relation to the leadership skills, since these may seriously disturb the consequence of a change assignment (Cutcliffe and Bassett 1997). Gerrish (2003) and Salter et al (2009) stated that an upright leadership is not a prerequisite of administration. Kilpatrick et al (2014) pointed out that the basic skills of a team leader are listening, observing, organizing, appreciating the team efforts, chairing a meeting, giving and receiving the response and coordinating the efforts. However, there are various leadership styles managers that have demonstrated to lead staff nurses in hospital (cited in 3rd ed. Philadelphia: Elsevier 2006)), but for the purpose of this dissertation, the author will debate the three main leadership styles, that is the autocratic leadership, the democratic leadership and the Laissez-faire leadership (Marquis and Huston (2008).

6.1 The Autocratic leadership

It is viewed as predictable, that is a great level of output, but frequently with poor motivation and creativity as well as morale as stated by Marquis and Huston (2008). Therefore, it is mostly applied in circumstances where the explanation ought to be rapid and precise with not much discussion. Since in the autocratic management all the decision is based on the leader only that is lack of collaboration from his team members. It is very difficult to apply in this piece of work.

6.2 The Democratic leadership

Tomey (2009), pointed out that this type of leadership is convenient when collaboration and co-ordination among team are crucial, hence it is a better to implement in this change of improving of the management of PIVD. Although it is recognised that democratic leadership style may take time in situation where quick decision is needed as stated by Martindale 2011, it will to lead to a better outcome in this planned change.

6.3 The Laissez Faire leadership

On the other hand, the laissez-faire leadership, the leaders give full liberty to the team to make the decisions. Hence, this type of leadership is favoured when the members of the team are highly motivated, interested and self-directed, experienced as well as talented for tacking decisions without the direction of the team leader. Therefore it is contradicted in this piece of work because in Rodrigues, some staffs lack motivation.

7.0 Change management

Change in nursing is vital with the requirements of patients as it highlighting the delivery of a high quality service as its objective, (Welford, 2006). As all nursing procedures, change consist of assessment, planning, implementation and evaluation. Change management is a recurrent process, in which each action disturbing the next (Welford, 2006).

Creasy (2017) defined change management as a structural approached for transitioning individuals from a current state to a wanted future to achieve a plan (human resources departmental 2011). In this project the current state is the poor management of PIVD including improper washing of hand, lack of knowledge in stabilization of the IV device and recurrent infection at the site of PIVD. The transitional state involves communicating the need for change through electronic message, meeting and training of staff to identify and overcome barriers for change. Eventually the future state is to improve the standard of PIVD management, decrease the frequency of reinsertion of PIVD, as a result reduce patient dissatisfaction related to PIVD care and minimised phlebitis.

The Nursing and Midwifery Council (NMC 2008) underlined that nurses *'must deliver care based on the best available evidence or best practice*', which recommended that a regular need to bring up to date, or make changes in the practice. In this context the change is to bring an improvement in the management of PIVD. However, Szabla L, (2007), in his study found that implementing change is more stimulating than it is sometimes supposed to be. For instance, in this project there are workforce shortages, professional obligations, ethical issues, and the possible to strengthen the patient satisfaction. Therefore, it is important that managers have to recognise an appropriate change model to structure the implementation, management and evaluation of the change (Pearson et al 2005).

Planned change in the nursing profession need for a variety of reasons, such as reduction of pain, swelling, infiltration and infected of PIVD in this context but it can be challenging to implement (Gary Mitchell 2013). There are several methods to implement a change. Yet, planned change that is a fixed, considered and cooperative is an effort to bring about progresses with the aid of a change agent as stated by Roussel (2006)

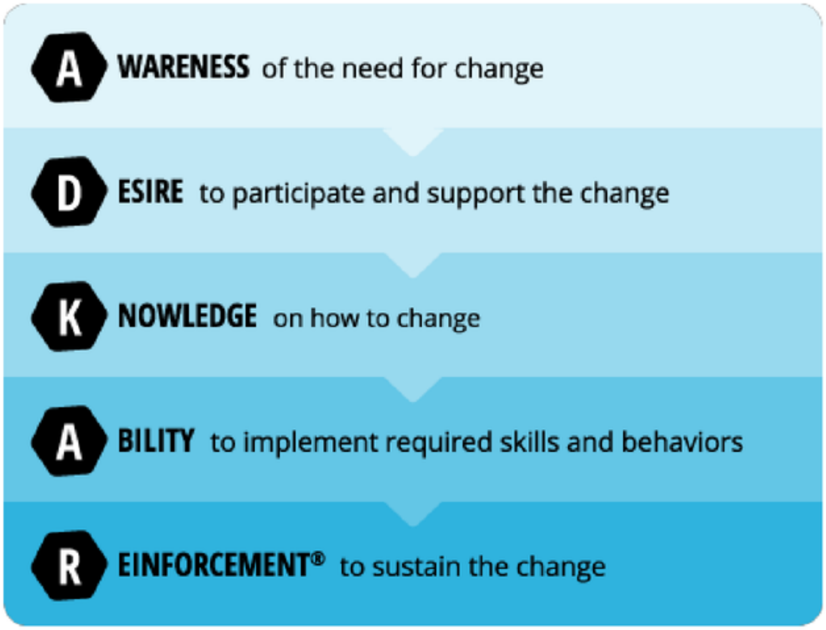
8.0 Change model and change process

There are many change models which are available to implement a change in an organisation. Some which are very popular are; ADCAR 2003, Kotter's 8 steps model and the Lewin's Three-Step Change Theory.

8.1 The Prosci ADKAR Model

One example of change model is the Prosci ADKAR Model. It is aim is to monitor individual's change. It was formed by Prosci founder Jeff Hiatt. It symbolises five outcomes that an individual need to attain in order for changes to be effective. The five actions are build blocks for successful singular change, and therefore successful structural change (Jeff Hiatt 2003).

The table below shows the five outcomes of Prosci ADKAR Model



A WARENESS of the need for change

D ESIRE to participate and support the change

K NOWLEDGE on how to change

A BILITY to implement required skills and behaviors

R EINFORCEMENT® to sustain the change

Figure 1: ADKAR

Source: www.tpsoc.eu

As highlighted by Jeff Hiatt (2003), success is impossible to achieve in one area unless the preceding action has been done (Patty Mulder 2014). On the other hand, the Prosci ADKAR Model has got a lot of critics when implementing in practice. For instance, Warrilow (2009) criticized the ADCAR model for no acknowledgement of leadership. Therefore, it cannot be applied in this proposed change.

8.2 The Kotter's 8 steps model

Another examples of model of change is Kotter's 8 steps model. It is created by John Kotter (1996) and its objectives are to look people work in order to transform their institutions. In (2002) John Kotter in an association with Dan Cohen investigate the essential problems individuals face when confronting to change. The latter arrives to the conclusion that the principal issue was changing the behaviours of persons and that effective change occurs when communication involves a person feelings (Kotter, 1997). He presented the eight-step change model to assist managers how to transform change (Kotter, 1997). The 8 steps of change are summarized in the figure below.

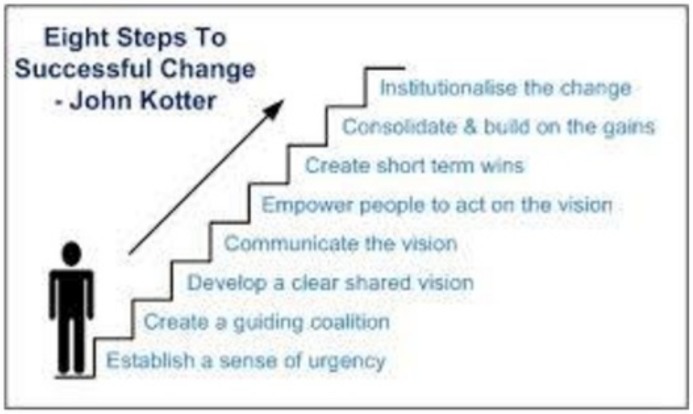

Eight Steps To
Successful Change
- John Kotter
Institutionalise the change
Consolidate & build on the gains
Create short term wins
Empower people to act on the vision
Communicate the vision
Develop a clear shared vision
Create a guiding coalition
Establish a sense of urgency

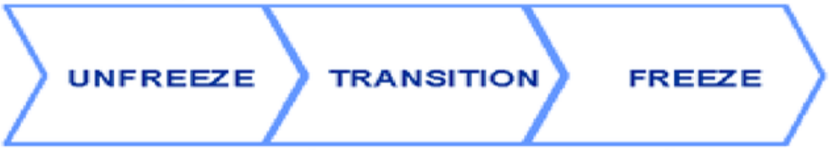
Figure 2: Kotter's 8 steps

Source: www.Kotterinternational.com

However, the Kotter's 8 steps model was criticized by Hoogendoom (2013) for being too rigid and that there is no room for flexibility. As a result, changes can be lost as there is no staff involvement while creating the change. Moreover, Hoogendoom (2013) further criticized that each step must be achieved in order to perform effectively. Therefore, this is time consuming to implement in this framework.

8.3 The Kurt Lewin change model

In addition to this, the Kurt Lewin model involving the following 3-steps as represented in the figure 4 below. Related to Lewin, the transformation process comprises how to create the awareness that a change is desirable. This means going toward the new desired behaviour and lastly consolidate it as the norm. The figure bellow shows a Kurt Lewin three step model of change.



www.change-management-consultant.com

Figure 4: Lewin's model

Lewin's model does not consider individual factors that can disturb change (cited in the international journal scholarly academic 2005).conversely, the social cognitive theory proposed that behavioural modification is modified by personal factors, environmental impacts as well as the attribution of the behaviour. Furthermore, those who criticised the Lewin’s theory declared that it is unfinished and it emphasises greatly on upper management to carry out a change. It does not includes fundamental stake holders in the process (Tiffany et al. cited in Lehman, 2008). Therefore, it is not appropriate to implement in this change proposal.

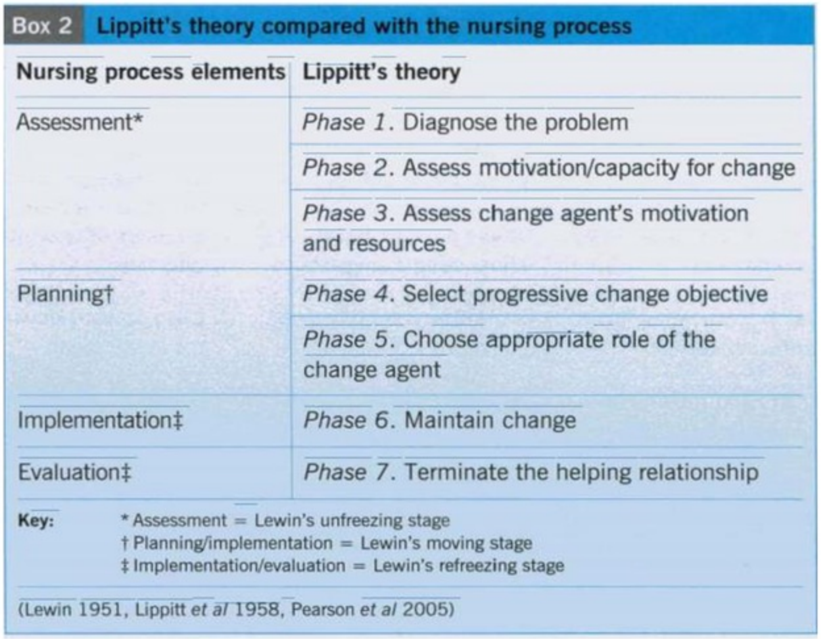
Conversely although the three model of change are very popular and seen to be effective, they have certain weaknesses that make them difficult to implement in this proposal change. However, the Lippitt’s theory of plan change is more suitable in this case. Lippitt's theory, together with to a democratic leadership is a common and active combination highlighted by Gary Mitchell (2012). Therefore, it will be explored in depth and the seven phases of the model will be implement in this work alongside with the action plan.

8.4 The Lippitt’s Model

Geraci (1997) specified that, Lippitt’s shapes his theory on the work of Kurt Lewin. They concentrate on problematic solution and personal domains of the change process.

Lewin’s model focused on the incidence of the process, while Lippitt’s model emphases on the prompting party that serves as the agent responsible for the change (Joel, 2005). It is familiar to nurses in the United Kingdom and Mauritius. It consist of four basics namely Assessment, planning, implementation and evaluation as stated by Pearson et al (2005). Geraci (1997) defined the seven phases of Lippitt’s theory as stated in the table below.

Figure 3: Lippitt’s theory



Box 2 **Lippitt’s theory compared with the nursing process**

Nursing process elements	Lippitt’s theory
Assessment*	*Phase 1*. Diagnose the problem
	Phase 2. Assess motivation/capacity for change
	Phase 3. Assess change agent’s motivation and resources
Planning†	*Phase 4*. Select progressive change objective
	Phase 5. Choose appropriate role of the change agent
Implementation‡	*Phase 6*. Maintain change
Evaluation‡	*Phase 7*. Terminate the helping relationship

Key:
* Assessment = Lewin’s unfreezing stage
† Planning/implementation = Lewin’s moving stage
‡ Implementation/evaluation = Lewin’s refreezing stage

(Lewin 1951, Lippitt *et al* 1958, Pearson *et al* 2005)

8.4.1 Phase 1. Diagnose the problem

The first phase of the Lippitt’s theory is to diagnose the problem (Pearson et al 2005). In this step, the nurse leader assesses the problem of peripheral intra venous device with other members of the nursing staffs in the male ward. It is very important to have an agreement and proper timescale that can avoid isolation and rise the possibility of achievement (Carney 2000). The staff should be aware of what required to change and the important initial steps to enable a change to take place (NICE 2007). By using the democratic leadership, the needed change is then identified to other members of staff that will involve, so that get-togethers can be seized to agree on how to start.

8.4.2 Phase 2. Assess motivation and capacity for change

In phase 2, the model proceeds *assess motivation and capacity for change* (Pearson et al 2005). In this context, the leader will apply the principles of democratic leadership to find out the staff that the change will affect, who are disposed to let the change occur or who opposed to the change (Joel 2005). The action could be performed by meeting all the staff during both day and night shifts to participate in the finding of solutions that may be encountered related to the improvement of PIVD so as to make sure all staff have participated to reduce resistance. The author has to consider that resistance to such change cannot be inevitable and that managers might be naive to think differently (Price 2008). Nonetheless, using the force-field analysis can counter these barriers. In this context, active and by establishing training can help to lessen the restraining force.

8.4.3 Phase 3. Assess change agent's motivation and resources

The third phase, to assess change agent's motivation and resources (Pearson et al 2005). Murphy 2006 highlighted that change agents are not always managers. According to Joel (2005), this could be done by hired from another ward or hospital that has done this work in the past. The democratic leadership may consider the nurses' stigmatization and acceptance by other staff, to observe that the implementation of the project is successful.

8.4.4 Phase 4. Select progressive change objective

As shown in the table 1 the fourth phase is,' *select progressive change objective'*. It corresponded to the nursing process second stage (Pearson et al 2005). Swansburg, (2002) highlighted that this phase will incorporate an action plan. According to NHS (2008) an action plan is vital in the implementation of change as it outlines the objectives and deadline. The duties are allocated to all nurses who are involved in helping to make the change happen so as to be in concordance with the leadership style. The strategy will contain in depth steps including schedules and time limit. The detail action plan of this work is found in the appendix 2. It may also be beneficial for nursing staffs as a resource by making use of audio visual aids to examine the procedure of insertion of PIVD.

8.4.5 Phase 5. Select the appropriate role of the change agent.

The 5th phase of the Lippitt's theory is to *select the appropriate role of the change agent*. Following the democratic leadership, Bozak (2003) stated that connecting the health staff dynamically in this proposal change will make a sense of proprietorship amongst the staff and moves to achievement of the process. Therefore, For the purpose of this assignment while taking into consideration that I am a member of the staff as well as the leader, I will need to have a constant participation and connection with the nursing staff and the nurse manager and nursing supervisor. The NHS change model (2013) highlighted that within this step it is necessary for the change agent to work closely to the team for motivating and encouraging. Through this work motivation was acquired through regular meetings. Evidence shows that the more communicating and collaborating a meeting is, the more operational it is in changing behaviours (NICE 2007).

8.4.6 Phase 6. Maintain the change

The 6th phases is to '*maintain the change*' (Lewis 1951, Lippitt et al 1958, Pearson et al 2005). It is fundamental as successful change can often retreat to previous, outdated performs (Carney 2000, Cork 2005). In this stage the collaboration between all nurses involve in concern with the management of PIVD needs to be continued with the modern practice so as to make the transformation permanent. The patient's comfort and other staff members need be appraised. Although Cork (2005) suggested that training illustrate only how to behave in a certain way, many authors such as Schifalacqua et al (2009) and

Martin (2006) recommended education plus training as a fundamental measure of a change process.

When the implementation of the management of PIVD suits a part of the ward schemes, then the author can relieved of the responsibilities. The response after implementation have to be documented. The incidences of phlebitis, infiltration and associated pain should be recorded and properly documented. The democratic leadership style is best suited in this stage. In order to assess the change process, the new management of PIVD would be reviewed every 25 weeks as shown in the action plan in the appendix 2 to ensure that the change is being maintain.

8.4.7 Phase 7. Terminating the helping relationship

The last stage of Lippitt's theory is "*terminating the helping relationship*" (Pearson et al 2005). At this stage the new management of peripheral intravenous device is no longer abnormal to the usual practice. Moreover, Mitchell (2013) and Jones (2007) pointed out that putting on policies supporting a change can help to sustain it. Yet, in this situation this would be impracticable since the proposal change is only among nursing staff in the male ward, therefore applying policies would be not suitable.

To be concluded, Bozak (2003) stated that to reduce confrontation and favour adaption to change, a good communicated approach is vital. However, by using a framework like the Lippitt's theory (1958) proactively rather than retrospectively may beneficially eradicate some of the possible difficulties. In this proposed assignment, I discussed an attempt to inspire staff participation in the process and suggest proposals to improve knowledge during the interesting time of improving the management of PIVD. As a staff member in male ward, I am predispose now to interact at any time with staff concerning a change.

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9.0 Reflection

There are different models of reflection that are available including, Gibb's1988, Terry Borton's 1970, Brookfield 1998, but for this dissertation we are told to use the John's (1995) model of reflection to ensure an understanding of the experience. John's reflective model is planned to be carried out through the action of allocation with a co-worker which allows the experience to develop a learnt knowledge at a faster rate than reflection alone. (Johns C et al 2010).

Being the first batch on my island to complete a Bachelor in nursing, everything throughout the dissertation were new. At the beginning I was worried, scarred, and uncertain of my own capacity when I was told to prepare this dissertation. When I thought about the problem concerning network, limited nursing library and unavailable up to date secondary resources, I felt stress and found the work nearly impossible to accomplish. This further intensify my discouragement. However, once I selected this exciting topic and participate in the lively and interesting session with the supervisor, my motivation started to build up and I felt ready and highly capable to perform the task. We are fortunate to have a very helpful supervisor and a motivated team.

The most important objectives and outcome to be achieve in this work were to conduct the topic problem, literature review and knowledge in implementing management leadership to the change process.

The comprehensive of the research topic used to support the improvement of the management of PIVD defined in this work supported by John's (1995) model of reflection mostly the "personal aspect". Initially, it was an annoying and irritating trying to find an interesting topic that the author could easily obtained available articles. I get relieve when I was aware that my colleagues also were facing such difficulties. This means that I am not the only one facing this problem. Moreover, the deeper I get in my search, the more interesting it become. This is due to the exciting reading about the problem in my ward.

The literature review was used to get reliable evidence and current knowledge articles, clinical guideline and protocol of the management of PIVD. This required intensive reading, discussion with newly qualified doctors who have just end their studies from developed countries and lectures to ensure the best articles were selected. The period of time to review the literature and extract the information was not known. On reflecting on the literature review, surely in the future very less articles centered in this topic will be needed. The skill to undertake a systemic review was not as problematic as we have got several exposures with our supervisor but as a novice the critical analysis at a level 6 was a challenged.

Reflecting on my new knowledge gain around the improvement of peripheral intravenous device can make a change on the team by the effective management using democratic leadership. Democratic leadership inspire me to feel part of the change which consequently is an essential diving force (NICE 2007). The NMC (2015) underlined that "Provide leadership to make sure people's wellbeing is protected and to improve their experiences of the healthcare system". The knowledge that I have got in this dissertation in the implementation of management, leadership and change theory will help me to strengthen my skill needed as a charge nurse in the forthcoming month.

Conclusion

According to the literature review, the insertion, short as well as long term risk associated with peripheral intravenous device are considerable. However, in the local settings peripheral intra venous device complication can be minimised and avoided with a good leadership and management style.

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Appendix 1

Search strategy

Search topic	Improving the management of peripheral intravenous device
Database search	EBSCO HOST, goggle search , Pub med, CINAHL
Initial key words	Peripheral intravenous device, phlebitis, infiltration,

9

PICO

P Patients/ population/ problem	I Intervention	C Comparison	0 Outcomes

Patient in male general ward	Improving the management of peripheral intra venous device	Compare the actual management of PIVD in ward to the best practice and evidence base.	• Patient satisfaction • Alleviate pain • Prevent the risk of infiltration • Reduce phlebitis • Improve patient • Professional boundaries • Professional image • Patient safety

Appendix 2

Action plan.

Date;	**Action; what needs to be done**	**How it will be proceeded**	**Involved people**
Week 1 to 2 weeks	Develop the power point presentation, plan the presentation idea plus the strength of the change and the evidence which support it.	By the use of computer in the ward	self
Week 2 to 3 weeks	Inform ward manager and charge nurse about the proposal	Book a face to face meeting	Ward manager, charge nurse and self

	change to have view and permission of action		
Week 2 to 3 weeks	Escalate change to higher authority with in the trust including the nursing supervisor and nursing administrator	Book a face to face meeting along with the PowerPoint presentation, showing the topic area and the benefits of the change. Show the action plan and how the change will be proceeded and communicating.	self
3 to 4 weeks	Invite staff for meeting	Using telephone to call all staffs to specified their allocated date and time for the meeting	self

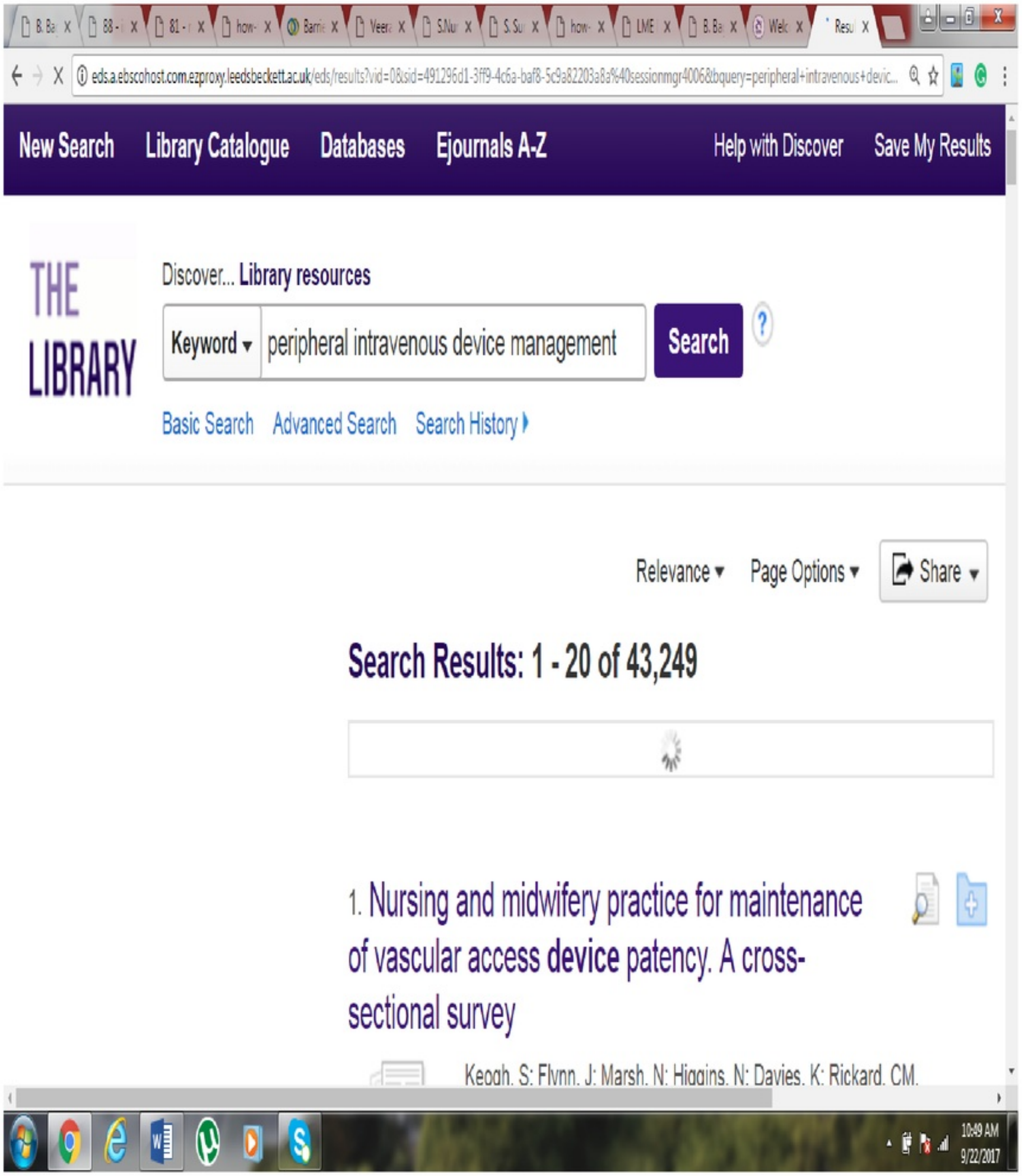
4 to 5 weeks	Gain staff members and service users to represent views on the proposal change	Arranged three wards meeting to make sure all staff are heard	All nursing staff including Charge nurse and ward managers
4 to 5 weeks	Gain those who supports the change	Gain feedback after the meeting and identified supporters.	Self and all staffs
4 to 5 weeks	Set up project team	Look up supporters and invite them to become part in the project team	Self and staff

4 to 5 weeks	Set an implementation date for the change	Made a face to face contact, informing the date the new management of PIVD started	self
5 to 7 weeks	Write up the effective guideline on the management of PIVD. Procedure in hand washing..	During allocation time at work. Using word document to write up guidance and procedure of PIVD. Send to nursing administrator office to check over. Send to staff as an electronic form.	self
7 to 8 weeks	Introducing a tool to measure the risk of complication	During allocation time at work Send staff by electronic form	Self
8 weeks	Change implemented		Self, staff and managers
16 to 22	Assess progress	After 4 months of the change meet all staff and with the visual infusion phlebitis score. Measure all the aspect of the change sough to address.	

		Assess barriers shortcoming and progresses	
22 to 23	Analyse the quantitative data	Using the appropriate tools such as bar chart.	self
25 weeks	Initiate furtherance of change if success	Show finding to managers	self

Snap shot

Appendix 3 the initial snapshot



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peripheral intravenous device management

Search Results: 1 - 20 of 43,249

1. Nursing and midwifery practice for maintenance of vascular access **device** patency. A cross-sectional survey

Keogh, S; Flynn, J; Marsh, N; Higgins, N; Davies, K; Rickard, CM.

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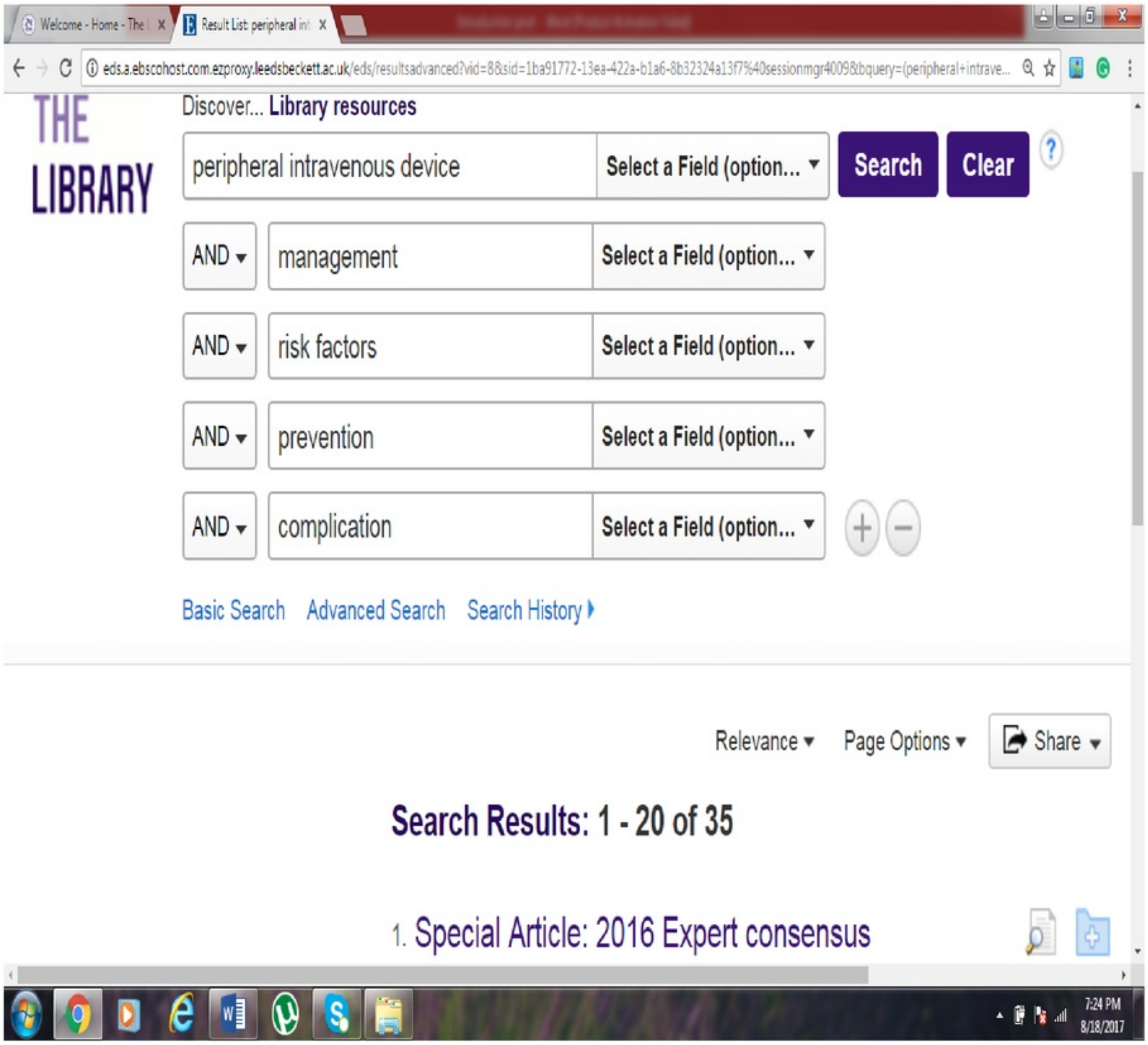
9/22/2017

The final snap shot

Appendix 4



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AND prevention

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1. Special Article: 2016 Expert consensus

Articles	Authors	Publisher	Date of publication	Methodology	SAMPLE		FINDINGS	CRITICAL APPRAISSAL
					Size	Population		
Assessing the influence of risk factors on rates and dynamics of peripheral vein phlebitis.	Mestre Roca, Gabriel [a,] ☐ Berbel Bertolo, Cristina [a] Tortajada Lopez, Purificación [a] Gallemi Samaranch, Gema [b] Aguilar Ramirez, Mari Carmen [b] Caylà Buqueras, Joan [c] Rodríguez-Baño, Jesús [d] Martinez, José Antonio	Elsevier Espana	21 July 2012	quantitative	1201 catheters	967 patients	PVP dynamics is highly influenced by identifiable risk factors which may be used to refine the strategy of catheter management. Routine replacement every 72h seems to be strictly necessary only in high-risk catheters.	The sample size is small. It is not representative.
Safe and correct use of peripheral	Dorniak-Wall, T Rudaks, L	WILEY-BLAC	2013	Quantitative	patient at		The Burns Unit had an overall compliance rate	The sample contain only burns

intravenous devices	Solanki, NS Greenwood, J	KWELL			the Burns Unit		of 71% meaning that PIVD is mostly safe in patient having burns.	patient cannot be generalised
Routine resite of peripheral intravenous devices every 3 days did not reduce complications compared with clinically indicated resite: a randomised controlled trial	Claire M Rickard1*, Damhnat McCann2 , Jane Munnings3 , Matthew R McGrail4	BioMed Central publishes under the Creative Commons Attribution License (CCAL).	2010	Quantitative research	302 patients	603 PIVD	There is growing evidence to support the extended use of peripheral IVDs with removal only on clinical indication but PIVD should be continuously reinserted every 96 hrs	Since it was done by general nurse the result is not valid as the PIVD was not inserted by iv team.
Factors affecting difficult peripheral intravenous cannulation in adults	Piredda, Michela, Barrella, Beatrice., Biagioli, Valentina, Ghinelli,	United Kingdom : Wiley-Blackwell Publis	Jun 16, 2016	Longitudinal Study; Prospective Study; Quantitative Study	763 patients during intraven	Human Male Female accessing a	Although many risk factors were identified, the overall success rate for nurses to insert a PIVD was very high,	The research was done in Italy only cannot be generalised to the actual practice

	Roberta, Giannarelli, Diana, De Marinis, Maria Grazia,	hing Ltd			ous insertion	radiology service		
PeripheralIV site rotation based on clinical assessment vs. length of time since insertion	Julie Helton Annette Hines Janie Bes	MEDSURG Nursing	February 2016	quantitative	71 patient	72 patients on a medical-surgical unit	The majority of IV sites in this study remained healthy long past 96 hours	The researcher are not able to compare phlebitis and infiltration rates of IV sites at various points in time as originally planned the result is not reliable
Prolonging the Life of a Patient's IV: An Integrative Review of Intravenous Securement Devices	Sonya Alekseyev v, Melissa Byrne, Austin Carpenter, Charlie Franker, Chelsea Kidd, and Linda Hulton	MEDSURG Nursing	October 2012	Qualitative data analysis			A significant decrease in the rates of Complications was associated with the use of IV securement devices versus use of traditional tape and surgical strips methods.	The study based on pass research which can considered as bias and not reliable at present time
Varied flushing frequency and volume	Samantha Keogh, Julie Flynn, Nicole Marsh Gabor Mihala Karen	BioMed Central publish	26 July 2016	Qualitative	40 patient per	160 patients	Flushing volume and flushing frequency of peripheral intravenous	The flushing volumes used were not controlled in the pre- and post-

to prevent **peripheral intravenous** catheter failure: a pilot, factorial randomised controlled trial in adult medical-surgical hospital patients.	Davies and Claire Rickard	es under the Creative Commons Attribution Licence (CCAL)			month		catheter management are feasible and required.	medications, and this may have confounded the effect of the randomised flushing.
Necessity of heparin for maintaining peripheral venous catheters: A systematic review and meta-analysis.	TAO YOU JIANLIANG JIANG JIANCHANG CHEN WEITING XU LI XIANG , YANG JIAO	PUB MED	Aug2017	qualitative analysis	32 studies	336 studies	When heparin was used as intermittent flushing, no significant difference of infusion failure was noted	The study is not reliable as not all the studies that the researcher used to analyses were using the same cannula material.
Preservative-free 0.9% sodium chloride for flushing and locking peripheral intravenous	Wang, R.; Luo, O.; He, L.; Li, J. X.; Zhang, M. G.	Wiley Publishing	2012	qualitative analysis	178	181	Sodium chloride solution is as effective and safe as conventional hep-arin saline solution for flushing and locking	Sample was too small to generalised

access device: a prospective controlled trial							peripheral intravenous access devices Sodium chloride solution is as effective and safe as conventional heparin saline solution for flushing and locking peripheral intravenous access devices Sodium chloride solution is as effective and safe as conventional heparin saline solution for flushing and locking peripheral intravenous access devices Sodium chloride solution is as effective and safe as conventional hep-	

							arin saline solution for flushing and locking peripheral intravenous access devices Sodium chloride solution is as effective and safe as conventional heparin saline solution for flushing and locking peripheral intravenous access devices	
Nursing and midwifery practice for maintenance of vascular access device patency. A cross-sectional survey	SamanthaKeogh , Julie Flynn, Nicole Marsh, Niall Higgins, Karen Davies, Claire M Rickard	Elsevier	2017	A cross-sectional survey	1068 patients	1178 patients	Flushing practices for vascular access device flushing appear to vary widely.	The study done only in Australia cannot be generalised.

Failed attempts and improvement strategies in peripheral intravenous catheterization	Armin Sabri, John Szalas, Kevin S. Holmes, Leah Labib and Tofy Mussivand	Bio-Medical Materials and Engineering	24 July 2012	literature search		128 papers published from 1975 to 2011	Bedside techniques have shown more improvement in PIVC success rates as opposed to pain management	Some of the review was in 1975, not reliable at present time
Prevention of infection in peripheral intravenous devices	Irene Lavemry, Lothian, Edinburgh; Paula Ingram		11 July 2006	literature search			Nurses can provide appropriate care to patients, prevent the spread of infection, protect themselves and break the chain of infection.	The hospital set up are very different to the local one. Therefore cannot be apply
Utility of peripheral intravenous cannulae inserted in one tertiary referral emergency department: A medical record audit	Fry, Margaret Romero, Bernadine Berry, Alison	Elsevier Ltd	February 19 2016	documentation	209 patients	357 patients	The majority of PIVCs inserted during the ED visit were used for medical treatment.	The research was done in Australia only, cannot be generalised

Plastic in patient study: Prospective audit of adherence to peripheral intravenous cannula monitoring and documentation guidelines, with the aim of reducing future rates of intravenous cannula-related complications	Yagnik, Lokesh * Graves, Angela Thong, Ken	Elsevier	January 2017	documentation			Cost-effective interventions result in improvements in adherence to practice guidelines.	Sample was too small to generalised
Incidence of phlebitis in patients with peripheral intravenous catheters: The influence of some risk factors	Anabela Salgueiro-Oliveira, Pedro Veiga, Pedro Parreira,	Australian Journal of advance nursing	2010	Prospective observational study	317 catheter	1,244 catheters	The risk factors are related to the use of prescribed medication and the catheterised limb.	Since it was an observation study it was difficult to compare with another sturdies as it rely on the nurses to record what they find and choose certain events from the totality they experienced. It is not reliable

Implementing and standardising the use of peripheral vascular access devices	Easterlow, Dean, Hoddinott, Phill., Harrison, Stephanie,	Wiley-Blackwell Publishing Ltd.	Mar, 2010.	documentation			Training and support to encourage the adoption of best practice, in conjunction with regular follow-up audits, can lead to a reduction in infection rates and general improvements in the quality of peripheral line care	Geographical bias, the study has done only in London cannot be generalised

Appendix 5

8166 word count

Leadership and management dessertation

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